Claims

1. A method of detecting mild impaired glucose tolerance, characterized in that the method comprises:
quantitatively determining myo-inositol level in a sample; and
evaluating a case where the level shows a characteristic value or more as mild impaired glucose tolerance or insulin secretory defect.

2. The method according to claim 1, wherein the quantitative determination of myo-inositol level in the sample is carried out using an enzyme.

3. The method according to claim 2, wherein the enzyme is myo-inositol dehydrogenase.

4. The method according to claim 2 or 3, wherein the quantitative determination of the myo-inositol level using the enzyme is carried out by an enzymatic cycling method.

5. The method according to any one of claims 1 to 4, characterized in that the myo-inositol level is quantitatively determined after elimination of sugars other than myo-inositol in the sample.

6. The method according to claim 5, characterized in that two kinds of kinases are simultaneously used for the reaction of eliminating sugars other than myo-inositol in the sample.

7. The quantitative method according to claim 6, characterized in that said two kinds of kinases are ATP-hexokinase and ADP-hexokinase.

8. The quantitative method according to any one of claims 4 to 7, characterized in that thio-NAD is used as a coenzyme at a final concentration of 0.1 mM or more in the reaction of quantitatively determining myo-inositol.

9. The quantitative method according to any one of claims 4 to 7, characterized in that thio-NAD is used as a coenzyme at a final concentration of 2 to 10 mM in the reaction of

quantitatively determining myo-inositol.

10. The method according to any one of claims 1 to 9, wherein the sample is obtained before and after glucose load, or before and after a meal.

11. The method according to claim 10, wherein the sample is urine.

12. The method according to any one of claims 1 to 11, characterized in that the sample is urine and the characteristic value is 0 to 20 μg/mg creatinine when measured as an increasing amount of myo-inositol excreted in the urine after 75g glucose load.

13. The method according to any one of claims 1 to 11, characterized in that the sample is urine and the characteristic value is 8 to 12 μg/mg creatinine when measured as an increasing amount of myo-inositol excreted in the urine after 75g glucose load.

14. The method according to any one of claims 1 to 13, characterized in that glucose level in the sample is quantitatively determined in addition to myo-inositol level in the sample.

15. A method of eliminating glucose in a sample, characterized in that two kinds of kinases are simultaneously used for the reaction of eliminating glucose in the sample.

16. The method of eliminating glucose according to claim 15, characterized in that said two kinds of kinases are ATP-hexokinase and an ADP eliminating agent.

17. The method of eliminating glucose according to claim 16, wherein the ADP eliminating agent is ADP-hexokinase.

18. A method of quantitatively determining myo-inositol level in a sample enzymatically using myo-Inositol dehydrogenase in the presence of thio-NAD or NADH, characterized in that two kinds of kinases are used in combination.

19. The method according to claim 18, characterized in that said two kinds of kinases are ATP-hexokinase and an ADP eliminating agent.

20. The method of eliminating glucose according to claim 19, wherein the ADP eliminating agent is ADP-hexokinase.

21. A composition for quantitative determination of myo-inositol, characterized in that the composition at least comprises:

1) thio-NAD;

2) NADH;

3) myo-inositol dehydrogenase; and

4) two kinds of kinases.

22. The composition for quantitative determination of myo-inositol according to claim 21, characterized in that said two kinds of kinases are ATP-hexokinase and an ADP eliminating agent.

23. The composition for quantitative determination of myo-inositol according to claim 22, wherein the ADP eliminating agent is ADP-hexokinase.

24. The composition for quantitative determination of myo-inositol according to any one of claims 21 to 23, characterized in that the composition further comprises a buffer selected from:
Bicine (N,N-Bis(hydroxyethyl)glycine), Tris (Tris(hydroxymethyl)aminomethane),
TEA (Triethanolamine), and Tricine (N-Tris(hydroxymethyl)-methylglycine).

25. The composition for quantitative determination of myo-inositol according to any one of claims 21 to 24, characterized in that the final concentration of thio-NAD is 0.1 mM or more.

26. The composition for quantitative determination of myo-inositol according to any one of claims 21 to 24, characterized in that the final concentration of thio-NAD is 2 to 10 mM.